



ENVIRONMENTAL • ENGINEERING • LAND SURVEYING

June 20, 2013

Mr. John Brunini
Brunini Firm
The Pinnacle Building
190 East Capitol Street, Suite 100
Jackson, MS 39201

Dear Mr. Brunini,

Carlson McCain, Inc. is pleased to submit the Wetland Mitigation Plan for the Williston Village RV Resort for your review.

Please call me at 701-595-7004 if you have any questions or need additional information.

Sincerely,

A handwritten signature in cursive script that reads 'Greg W. Meyer'.

Greg Meyer, MS
Ecologist

WETLAND MITIGATION PLAN

**Williston Village RV Resort
Section 24, T155N, R101W
Williams County, North Dakota
Project #4554**

Prepared for:

**Mr. John Brunini
Brunini Firm
The Pinnacle Building
190 East Capitol Street, Suite 100
Jackson, MS 39201**

June 20, 2013



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ENVIRONMENTAL • ENGINEERING • LAND SURVEYING

EXECUTIVE SUMMARY

Construction of the Williston Village RV Resort (RV Resort) has impacted a wetland that appears to be connected to Camp Creek. A wetland delineation conducted by Carlson McCain, Inc. determined that 4.5 wetland acres were impacted by construction activities (Carlson McCain, 2013). This Wetland Mitigation Plan outlines procedures that will be taken to mitigate the wetland impact(s).

The RV Resort proposes to mitigate the impacted wetland area by creating/expanding wetlands of similar class and function. The on-site and in-kind mitigation wetlands will provide similar habitat and society functions at both local and landscape levels as the impacted wetland area. At the local level they will provide enhanced nesting, feeding, and brood-rearing habitat. At the landscape level they will create additional floodwater retention and improve water quality as areas along Camp Creek become developed. The mitigation site is located in the NE¼ of Section 24, T155N, R101W. The amount of wetland impacts and proposed compensatory mitigation are summarized in Table 1.

Table 1. Summary of Project Wetland Impacts and Compensatory Mitigation

Project Location	Williams County	Section 24, T155N, R101W
Project Wetlands	PEMA/PEMC (Cowardin 1979)	
Permanent Wetland Impact	4.5 Acres	
Mitigation Location	Williams County	Section 24, T155N, R101W
Area of Mitigation Site	Approximately 4.6 acres	
Area and Type of Mitigation	Approximately 4.6 acres of wetland expansion/creation	
Total Mitigation Credits	Approximately 4.6 acres	
Years of Monitoring	5 years	

The proposed mitigation wetland characteristics will be monitored for up to five years, or until the mitigation wetlands have met their performance standards for two consecutive years and receive the consent of the U.S. Army Corps of Engineers (USACE) to end monitoring. A monitoring plan is also included in this document.

TABLE OF CONTENTS

1.0	INTRODUCTION	1
2.0	WETLAND IMPACT ASSESSMENT	2
2.1	Mitigation Strategy	2
2.2	Mitigation Credit Ratios	2
3.0	MITIGATION STRATEGY AND SITE	3
3.1	Mitigation Site Location	3
3.2	Mitigation Site Historic and Current Land Use	3
3.3	Mitigation Wetlands	3
3.4	Wildlife Habitat and Use	3
4.0	MITIGATION SITE DESIGN	6
4.1	Wetland Delineation	6
4.2	Mitigation Plan	6
4.2.1	Mitigation Wetland Seeding/Planting Plan	6
4.2.2	Noxious Weed Species Management	7
5.0	MITIGATION ECOLOGICAL BENEFITS	8
5.1	Wetland Ecosystem Services	8
6.0	MONITORING PLAN	9
6.1	Monitoring Methods	9
6.1.1	Photo Points	9
6.1.2	Wetland Vegetation	10
6.1.3	Wetland Hydrology	10
6.1.4	Hydric Soil Indicators	10
6.2	Problem Areas	10
6.3	Monitoring Report	10
7.0	REFERENCES	11

**Williston Village RV Resort
Wetland Mitigation Plan**

APPENDICES

- Appendix A Figures**
- Appendix B Williston Village RV Resort Wetland Delineation Report**
- Appendix C Mitigation Wetlands Design**

1.0 INTRODUCTION

Construction of the Williston Village RV Resort impacted approximately 4.5 wetland acres by filling a former oxbow/meander channel of Camp Creek (Appendix A). Camp Creek flows east through the northern portion of the RV Resort property toward the Little Muddy River. Fill was placed into the former oxbow/meander channel during construction activities. Construction was halted when the area was identified as a possible wetland. A wetland delineation that evaluated historic aerial photos and current field conditions was conducted to determine the area of impact (Appendix B). This report identifies the project impacts to the wetland and proposes an option to mitigate those impacts.

The wetland is located on the RV Resort property on the north edge of Williston, North Dakota, in the NE¼ of Section 24, T155N, R101W (Appendix A).

Table 2. Impacted Wetland Area

Wetland	NWI	Acres*	Wetland Impact Acres
Wetland 1	PEMA/PEMC	4.5	4.5
		Total	4.5

*Acreage estimated from wetland delineation contained in Wetland Delineation Report (Carlson McCain, 2013).

The RV Resort will oversee construction, management, and monitoring of the mitigation wetlands.

2.0 WETLAND IMPACT ASSESSMENT

The impacted wetland is located on RV Resort property and is classified as Palustrine Emergent Temporarily Flooded (PEMA) and Palustrine Emergent Seasonally Flooded (PEMC). The wetland area was a former oxbow/meander channel of Camp Creek and is located in the Little Muddy River watershed.

2.1 Mitigation Strategy

The RV Resort plans to create/expand existing wetland areas along Camp Creek by excavating adjacent uplands areas. The excavation will create shallow depressions that will be hydrologically connected with Camp Creek and are designed to become inundated and retain flows of the creek. Besides hydrology, Camp Creek and adjacent wetlands will provide a large seed bank to ensure the development of a functional hydrophytic vegetation community.

2.2 Mitigation Credit Ratios

Mitigation credit ratios describe the ratio of compensation credits given to certain actions of mitigation for affected acres. For example, a 1:1 ratio means that one mitigation acre is required to compensate for one affected acre. A 2:1 ratio means that two mitigation acres are required to compensate for one affected acre. Mitigation credit ratios established for North Dakota are shown in Table 3 (USACE 2009).

Table 3. Wetland Mitigation Credit Ratios

Mitigation Action	Ratio
Fully drained wetland restoration	1:1 acres
Wetland creation	2:1 acres
Wetland expansion	1:1 acres*

*Credit ratio predicted due to expansion of existing wetlands and Camp Creek providing adequate hydrology and a hydrophytic vegetation seed bank.

3.0 MITIGATION STRATEGY AND SITE

3.1 Mitigation Site Location

The mitigation area is located in the northeast corner of the RV Resort, approximately 235 feet from the impacted wetland area. The mitigation area will be adjacent to Camp Creek that flows into the Little Muddy River, which in turn flows into Lake Sakakawea.

The mitigation area is located within the Northern Glaciated Plains - Glaciated Dark Brown Prairie sub-ecoregion of North Dakota (Bryce et al. 1996). The Site's landscape consists of level to gently rolling plains topography with established drainage systems.

3.2 Mitigation Site Historic and Current Land Use

The mitigation area consists of an area of perennial grassland that has been used for livestock grazing and also appears to have been formerly cultivated. The vegetation on the Site primarily consists of crested wheatgrass (*Agropyron cristatum*) and western wheatgrass (*Pascopyrum smithii*).

3.3 Mitigation Wetlands

Two sites adjacent to Camp Creek and its associated wetlands have been selected for mitigation. Both sites consist of upland soils and vegetation but are immediately adjacent to Camp Creek and its associated wetlands. Both sites would be periodically inundated by high flows.

3.4 Wildlife Habitat and Use

The mitigation sites currently provide foraging and nesting habitat for grassland bird species. Creation/expansion of the mitigation wetlands will enhance habitat for species that utilize shallow wetlands for foraging and nesting. Wading shorebirds, waterfowl, amphibians, reptiles, fish species and other wildlife will all benefit from the mitigation wetlands. The Site is located within the Central Flyway migratory route and will be utilized by numerous waterfowl, waterbird, and passerine species.

Williston Village RV Resort
Wetland Mitigation Plan



Photograph 1 - Mitigation Site 1

Photograph taken facing south toward the RV Resort. Mitigation Site 1 is an upland area adjacent to Camp Creek. Crested wheatgrass is the primary vegetation on the site. Excavation of the site would allow inundation by high flows back-flooding into it from Camp Creek. The high flows would also bring hydrophytic vegetation seeds into the mitigation wetland. The blue line indicates the approximate location and shape of Mitigation Site 1.

Williston Village RV Resort
Wetland Mitigation Plan



Photograph 2 – Mitigation Site 2

Photograph taken facing south toward the east side of the RV Resort. The mitigation site is a low elevation upland area adjacent to the associated wetlands of Camp Creek. Crested wheatgrass and western wheatgrass are present on the site. Excavation of the site would allow inundation and saturation from the adjacent wetlands. The adjacent wetlands would also be a source of hydrophytic vegetation seeds. The blue line indicates the approximate location and shape of Mitigation Site 2.

4.0 MITIGATION SITE DESIGN

The mitigation design will create approximately 4.6 wetland acres (Table 4). The wetlands will have temporary hydrologic regimes and an NWI designation of PEMA. The impacted wetland area also had an NWI designation of PEMA.

Table 4. Mitigation Wetland Acres and Potential Credits

Wetland ID	NWI Classification	Restored Acres	Mitigation Ratio	Wetland Credits
Mitigation Site 1	PEMA	1.6	1:1	1.6
Mitigation Site 2	PEMA	3.0	1:1	3.0
	TOTAL	4.6		4.6

*Credit ratio predicted due to expansion of wetlands and Camp Creek providing adequate hydrology and a hydrophytic vegetation seed bank.

4.1 Wetland Delineation

A wetland delineation of the RV Resort was conducted by Carlson McCain, Inc. on May 9, 2013 (Appendix B). The delineation evaluated current field conditions and utilized historic aerial photos to determine the impacted area. Soils, hydrology, and vegetation were evaluated and documented during the wetland delineation at numerous observation points. Field photographs were also collected during the wetland field delineation.

4.2 Mitigation Plan

The mitigation plan includes excavating upland areas adjacent to Camp Creek and its associated wetlands. Water flow from Camp Creek and a high ground water table will provide hydrology to the mitigation wetlands. Topsoil will be removed and stockpiled nearby and then re-spread throughout the mitigation wetlands to ensure soil quality. Sub-soils will be removed and hauled away. Proposed grading plans are included in Appendix C.

Excavation of the mitigation wetlands will commence in 2013 following the approval of the mitigation plan and weather permitting.

4.2.1 Mitigation Wetland Seeding/Planting Plan

The mitigation sites will consist of an expansion of Camp Creek and associated wetlands. Saltgrass (*Distichlis spicata*), alkali grass (*Puccinellia nuttalliana*), and foxtail barley (*Hordeum jubatum*) are prevalent in the Camp Creek wetlands and will aid in vegetating the mitigation wetlands. Seeds from these species and others found in the Camp Creek wetlands will disperse into the mitigation wetlands during high flow. Wetland hay from adjacent wetlands will also be spread in the mitigation wetlands to help establish a hydrophytic vegetation seed bed.

**Williston Village RV Resort
Wetland Mitigation Plan**

4.2.2 Noxious Weed Species Management

Chemical and/or mechanical controls will be used to manage noxious weed species if they become prevalent within the mitigation wetlands and the adjacent uplands. The mitigation wetland site will be monitored annually by the RV Resort and appropriate steps will be taken to control noxious weeds. Noxious weeds identified by the North Dakota state list will be managed. Williams County does not list any additional noxious weeds.

Plants identified as noxious weeds include:

- Absinth wormwood
- Canada thistle
- Diffuse knapweed
- Leafy spurge
- Musk thistle
- Purple loosestrife
- Russian knapweed
- Spotted knapweed
- Yellow toadflax
- Dalmation toadflax
- Salt cedar

5.0 MITIGATION ECOLOGICAL BENEFITS

5.1 Wetland Ecosystem Services

The complex of mitigation wetlands will provide multiple benefits to the surrounding environment and ecosystem. Ecosystem services as described by Gleason et al. (2008) include:

- Carbon Sequestration
- Flood Water Storage
- Reduction of Sedimentation and Nutrient Loading
- Improved downstream water quality
- Wildlife Habitat

The mitigation wetlands will provide the aforementioned ecosystem services. The mitigation wetlands will be essential to improve downstream water quality in the Little Muddy River and Lake Sakakawea by retaining sediment and nutrients that will wash into Camp Creek during future development.

6.0 MONITORING PLAN

Wetlands used for mitigation purposes require subsequent monitoring of their hydrology and vegetation to ensure they are functioning correctly. The mitigation wetlands will be evaluated with wetland criteria as identified in the *Great Plains Regional Supplement to the 1987 Manual (Version 2.0)* (USACE 2010).

Monitoring of the mitigation wetlands will be conducted for at least five years, or until the mitigation wetlands have met their performance standards for two consecutive years and receive consent of the USACE to end monitoring.

6.1 Monitoring Methods

Monitoring of the mitigation wetlands will consist of an annual field visit, a monitoring report, and follow-up to any questions or suggestions from regulatory personnel. A field visit to the mitigation wetlands will be performed annually in late July or early August of each year that monitoring is required. The mitigation wetlands will be evaluated by the presence of indicators of wetland criteria, i.e., hydrology, hydrophytic vegetation, and the development of hydric soils at representative observation points. The spatial location of the observation points and the photo points will be collected during the initial monitoring effort with a GPS to ensure that the same locations are evaluated during subsequent monitoring visits.

6.1.1 Photo Points

Photo points are a specified location in which photographs will be taken. Photographs taken from a specified location and consistent direction will provide a visual account of the development of the mitigation wetlands.

Photo points will be established in strategic locations in order to document the changes occurring within the mitigation wetlands. The proposed locations and directions of the photo points can be seen in Figure 4 (Appendix B). The photo points will be marked with a metal stake and the spatial locations will be collected with a GPS. Photographs taken from these locations will have consistent camera settings and a documented viewing direction. Photo identification cards with pertinent information to the photo point will be placed in the photograph's field of view. Information documented on the photo identification card will include:

- Unique photo point identification
- Photographer's initials
- Date and time
- Magnetic declination
- Location

*Williston Village RV Resort
Wetland Mitigation Plan*

6.1.2 Wetland Vegetation

Wetland vegetation composition will be evaluated at each observation point following the guidelines set forth by the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0)* (USACE 2010). An additional vegetation species list will be compiled while traversing between observation points. The adjacent uplands will be evaluated for the presence of noxious weeds.

6.1.3 Wetland Hydrology

Wetland hydrology indicators will be evaluated at each observation point following the guidelines set forth by the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0)* (USACE 2010). Hydrology indicators will also be identified while traversing between observation points.

6.1.4 Hydric Soil Indicators

Soil pits will be evaluated at each observation point to identify the development of hydric soils. Hydric soils indicators will develop slowly over time and may not be visible during the monitoring effort. Hydric soil indicators will be based on the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0)* (USACE 2010).

6.2 Problem Areas

Problem areas will identified and documented during the monitoring visits. Photographs and notes detailing each problem area will be collected during the field monitoring. Problems areas may involve erosion, areas barren of vegetation, etc.

6.3 Monitoring Report

Monitoring reports will be completed after each monitoring visit and submitted to the USACE North Dakota Regulatory Office in Bismarck, North Dakota. Each report will follow the guidelines set forth by the Mitigation Monitoring Plan (USACE 2010) and contain:

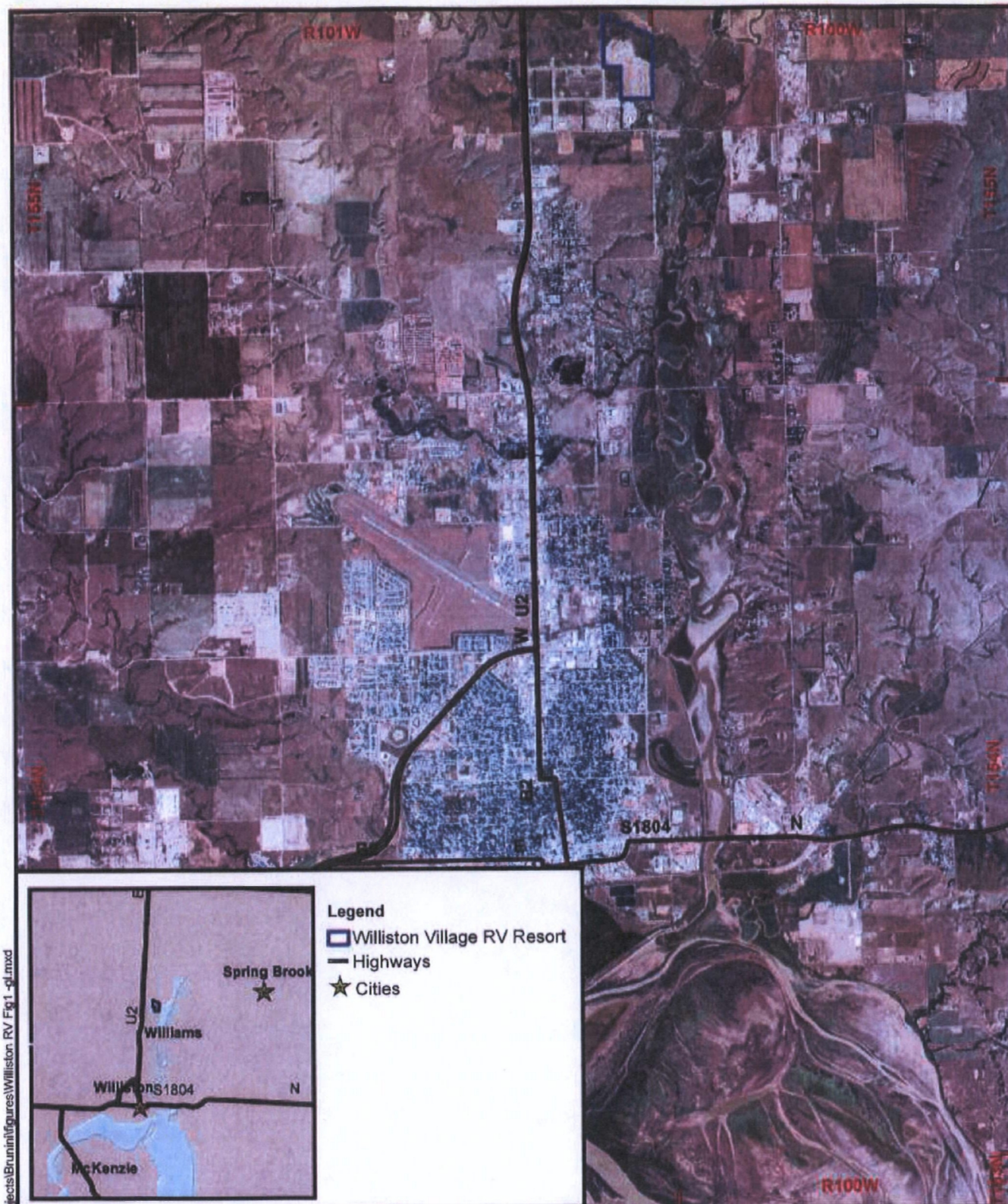
- USACE Permit Number
- Name and contact information of permittee, point of contact, and field observer(s)
- Name of person conducting monitoring reports and dates of monitoring visits
- Directions to and map of mitigation area
- Summary paragraph describing the project's purpose, impacted area's acreage and type, and mitigation wetlands acreage and type
- Timeline of mitigation wetlands' construction activities and final date of their completion
- Photographs and a narrative summary of the mitigation wetlands' progress and development into functional wetlands, i.e., meeting wetland criteria indicators
- Photographs and descriptions of any problem areas
- Recommendations for corrective or remedial actions (if necessary)
- Description and dates of implemented corrective actions (if applicable)

7.0 REFERENCES

- Bryce, S.A., Omernik, J.M., Pater, D.A., Ulmer, M., Schaar, J., Freeouf, J., Johnson, R., Kuck, P., and Azevedo, S.H., 1996, Ecoregions of North Dakota and South Dakota (color poster with map, descriptive text, summary tables, and photographs): Reston, Virginia, U.S. Geological Survey (map scale 1:1,500,000).
- Carlson McCain, Inc. 2013. Wetland Delineation Report: Williston Village RV Resort. Section 24, T155N, R101W. Williams County, North Dakota. 30pp.
- Cowardin, L.M., V. Carter, F.C. Golet, E.T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Jamestown, ND: Northern Prairie Wildlife Research Center Online. <http://www.npwrc.usgs.gov/resource/wetlands/classwet/index.htm> (Version 04DEC1998). Accessed May 2013.
- Environmental Laboratory. 1987. *Corp of Engineers Wetlands Delineation Manual*. Wetlands Research Program. Technical Report Y-87-1. Department of the Army, Waterways Experiment Station, US Army Corp of Engineers, Vicksburg, Mississippi, USA.
- Environmental Laboratory. 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0)*. U.S. Army Corps of Engineers, U.S. Army Engineer Research and Development Center, Vicksburg, Mississippi, USA.
- Gleason, R.A., Laubhan, M.K., and Euliss, N.H., Jr., eds., 2008, Ecosystem services derived from wetland conservation practices in the United States Prairie Pothole Region with an emphasis on the U.S. Department of Agriculture Conservation Reserve and Wetlands Reserve Programs: U.S. Geological Professional Paper 1745, 58 p.
- U.S. Army Corps of Engineers, 2009. Wetland Mitigation Banking in North Dakota. Interagency guidance for Mitigation Bank Sponsors. <http://nwo.usace.army.mil/html/od-rnd/MitigationBankingGuidanceDocument.pdf> Accessed May 2013.
- U.S. Army Corps of Engineers. 2010. *Mitigation Monitoring Plan*. North Dakota Regulatory Office. Bismarck, North Dakota.

Appendix A

Figures



E:\Projects\Brunin\figures\Williston RV Fig1 -q1.mxd
May 2013

1:63,360

1 inch = 1 miles

0 0.25 0.5 1 Miles

Basemap: NAIP Orthophoto 2012
Williams County, North Dakota



- Legend**
- Williston Village RV Resort
 - Highways
 - ★ Cities

Carlson McCain

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Figure 1
General Location
Section 24, T155N, R101W
Williston Village RV Resort

E:\Projects\Brunin\4554 Williston Site RV Resort\figures\Williston RV - Mitigation Sites.mxd

June 2013



Appendix B

Williston Village RV Resort Wetland Delineation Report

See May 17, 2013, letter.
Appendix B of June 20, 2013,
letter does not contain
p. 3, 3.0 Results —
page missed when
scanning to PDF?

Appendix C

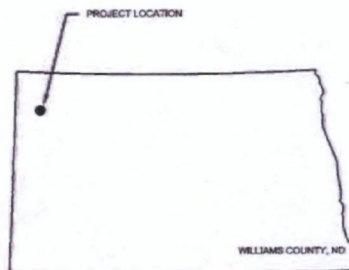
Mitigation Wetlands Design

WETLAND MITIGATION PLAN DRAWINGS

WILLISTON VILLAGE RV RESORT

BRUNINI FIRM

SECTION 24, T155N, R101W
WILLIAMS COUNTY, NORTH DAKOTA



LOCATION MAP
NO SCALE

SHEET INDEX

- 1 COVER SHEET
- 2 EXISTING CONDITIONS
- 3 GRADING PLAN



ESTIMATED EARTHWORK QUANTITIES

NO.	DESCRIPTION	QUANTITY	UNIT
1	TOPSOIL REMOVAL & REPLACEMENT (12" Depth)	10,000	C.Y.
2	ADDITIONAL UNCLASSIFIED EXCAVATION	11,000	C.Y.

Redlines:	

Carlson McCain
ENVIRONMENTAL • CIVIL • SURVEYING
800 S. 2nd St., Suite 101, Bismarck, ND 58504
Phone: 701-255-1475 Fax: 701-255-1477

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of North Dakota.
Kirk L. Pope
Date: 6/10/2019 Reg. No. PE-8682

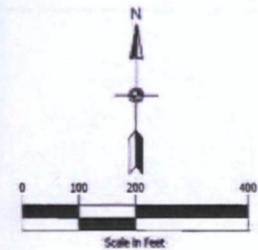
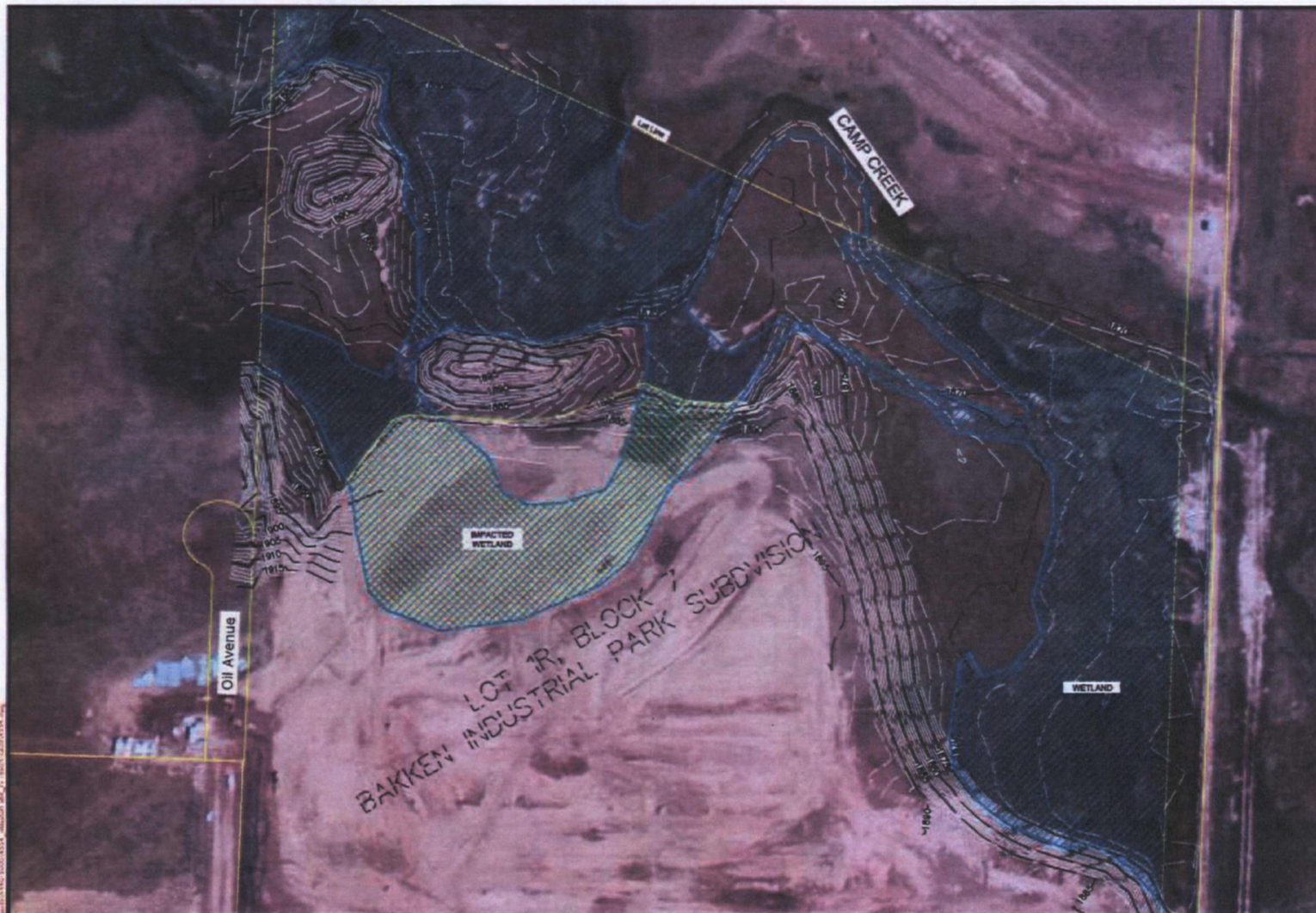
BRUNINI FIRM
190 East Capitol Street
Jackson, Mississippi, 39201

**WILLISTON VILLAGE
RV RESORT**
Williams County, North Dakota



**WETLAND MITIGATION
COVER SHEET**

Project No. 4554

1
3



LEGEND

- 1000' ——— CONTOUR (EXISTING)
-  WETLAND
-  IMPACTED WETLAND

NOTES

1. CONTOURS SHOWN WERE DERIVED FROM FIELD TOPOGRAPHY (SHOT 6/5/2013).
2. 2012 NAIP AERIAL PHOTOGRAPHY SOURCE DATA.



Carlson McCain

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Phone 701-255-1475 Fax 701-255-1477

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of North Dakota.

Kirk L. Page

Kirk L. Page
Date 6/10/2013

Reg. No. PE-8682

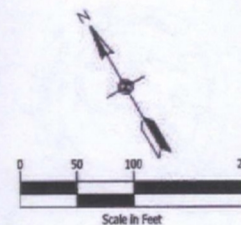
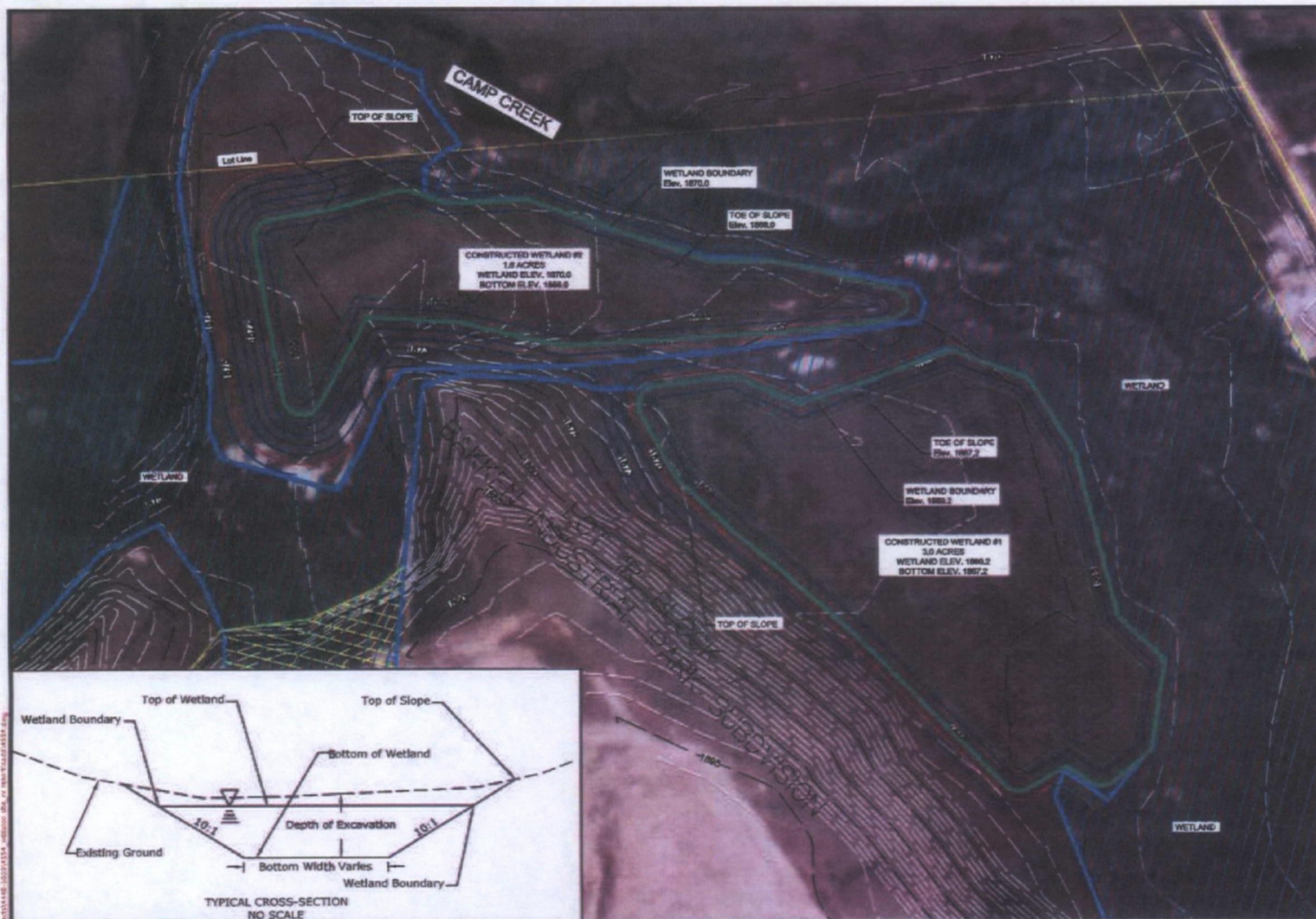
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Jackson, Mississippi, 39201

**WILLISTON VILLAGE
RV RESORT**
Williams County, North Dakota

**WETLAND MITIGATION
EXISTING CONDITIONS**

Project No. 4554

2
3



LEGEND

- 1860 CONTOUR (EXISTING)
- WETLAND
- IMPACTED WETLAND
- CONSTRUCTED WETLAND
- 1870 CONSTRUCTED CONTOUR

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL COORDINATES AND ELEVATIONS PRIOR TO STARTING CONSTRUCTION. DEVIATIONS FROM THESE PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE GRADING.
2. 2012 NAIP AERIAL PHOTOGRAPHY SOURCE DATA.
3. SEED ALL DISTURBED AREAS.



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I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of North Dakota.
 KYLE L. POPE
 Date 6/10/2015 Reg. No. PE-8682

BRUNINI FIRM
 190 East Capitol Street
 Jackson, Mississippi, 39201

**WILLISTON VILLAGE
 RV RESORT**
 Williams County, North Dakota

**WETLAND MITIGATION
 GRADING PLAN**

Project No. 4554

3
 3